



ISD Software Process Asset Development

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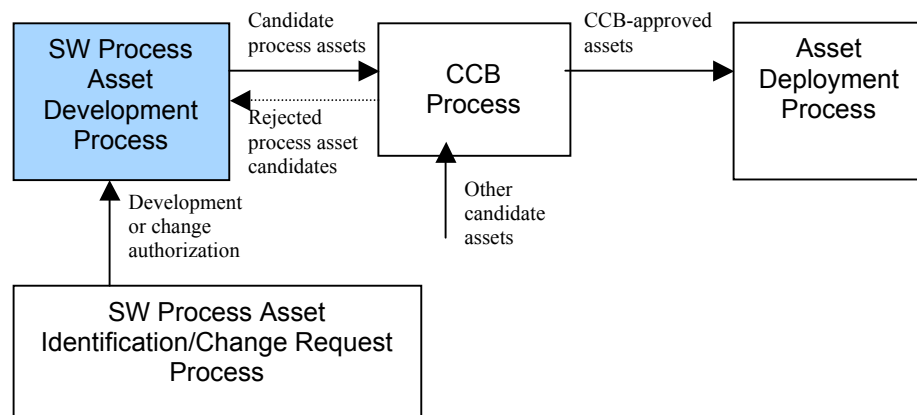
Responsible Office: 580/Information Systems Division (ISD)
Title: ISD Software Process Asset Development

Asset Type: Sub-process
PAL Number: 3.5.2

Purpose This sub-process describes the development of new or modified software process assets for ISD projects or organizations.

Scope This process applies to the development of new software process assets, or the modification of existing assets, for ISD projects or organizations. This process may also be used to develop or modify generic software process assets that may be tailored for specific projects or organizations.

Context



Roles and Responsibilities

Asset Manager (typically EPG Lead or designee):

- Assigns a priority to the process asset
- Assigns an author, reviewer(s), and tester(s)
- Coordinates a schedule and Earned Value points with the author
- Monitors and drives development of the process asset

Author:

- Creates the draft or modified Software Process Asset
- Incorporates review comments

Reviewer:

- Examines the draft or modified software process asset
- Provides comments, suggestions, and corrections to the author

Asset Tester:

- Plans and carries out the verification of the draft process asset

Process Asset Database Administrator:

- Maintains the Process Asset Database
- Maintains the process asset schedule and earned value points

Inputs

Inputs to this process include any of the following:

- Asset development authorization AND copies of any relevant existing processes, procedures, or other documents
- Asset change authorization AND process asset to be changed
- Criticality indicator, if any, for the process asset
- CCB-rejected candidate asset AND reasons for rejection
- Relevant template(s)

Entry Criteria

- Resources are available.
- Asset development or change request has been approved.

Exit Criteria

- The draft asset has been reviewed, verified, and sent to the CCB.

Outputs

Outputs from this process include the following:

- Final draft of verified candidate process asset (ready for CCB process)

Major Tasks

Except for Tasks 1 and 2, which may be performed in either order or simultaneously, the following major tasks are executed sequentially:

1. Assign priority to planned process asset. (Asset Manager)
2. Assign Author. (Asset Manager)
3. Coordinate and monitor the schedule and earned value points. (Asset Manager)
4. Gather and analyze asset requirements. (Author)
5. Prepare draft. (Author)
6. Review draft. (Reviewers)
7. Define verification procedure. (Asset Tester)
8. Review verification procedure. (Author and Asset Manager)
9. Perform verification procedure. (Asset Tester)
10. Send candidate process asset to CCB Process. (Asset Manager)

Task 1

Assign priority to planned process asset. The Asset Manager reviews the input materials and assigns a priority to the planned process asset. The priority should take into consideration at least the following factors:

- Is this a new process asset or a change to an existing one?
- Do other process assets depend on this one?
- How critical is this process asset?
- Is any ISD project known to be waiting for this process asset?
- Has this process asset been previously rejected by the CCB?

Task 2:

Assign Author. The Asset Manager assigns an Author to develop the process asset. In making this assignment, the Asset Manager should consider at least the following factors:

- Which personnel are available to serve as authors?
 - How many process assets are currently assigned to each potential author?
 - Are there any potential authors who possess specific knowledge or experience directly relevant to the asset?
 - For a change to an existing asset, is the author of the original asset still available?
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Task 3:	Coordinate and monitor the schedule and earned value points. The Asset Manager meets with the Author to develop and agree upon the schedule and earned value points for the process asset. During the development of the process asset, the Asset Manager monitors conformance to the schedule and earned value points.
Task 4:	Gather and analyze asset requirements. The Author searches for existing process assets that may be relevant. For example, the Author should look at: old flight software processes and procedures, guidance documents prepared by the SEL (e.g., Recommended Approach, Manager's Handbook), pertinent resources from other NASA centers (especially MSFC, JPL, and JSC), assets on the Software Working Group PBMA site, the NASA PAL (containing approved assets from other centers), and commercial resources available on several web sites (e.g., Hill AFB, SPAWAR, and Software Productivity Consortium). The Author reviews the available inputs and gathers requirements for the proposed asset. These requirements could be either topics that the asset is to address, actions that it should cover, or limitations or constraints that it will have to satisfy. The requirements may be simply changes to an existing process asset, or to one that the CCB has rejected. To gather these requirements, the Author should bring together people who are currently using or performing the process asset, and solicit their inputs. The Author analyzes the asset requirements and existing assets, and then develops an outline of the proposed asset. This may involve grouping related requirements together and possibly resolving conflicting requirements.
Task 5:	Prepare draft. The Author prepares a first draft, following the appropriate ISD process asset template, and forwards the draft to the Asset Manager to coordinate the review. If, in the course of preparing this draft, the Author identifies areas where the template can be improved, such suggestions are also forwarded to the Asset Manager. In some cases, the first draft may consist simply of a Table of Contents. For a modified process asset, the draft may consist entirely of changes to the existing text.
Task 6:	Review draft. The Reviewers review the first draft and provide comments, suggestions, and corrections to the Author. The Author revises the initial draft to address the Reviewers' recommendations. If necessary, the Author and Reviewers iterate on these steps. The objective is to produce a final draft that is ready for verification.
Task 7:	Define verification procedure. The Asset Tester reviews the asset requirements (from Task 4) and identifies the steps to be taken to verify the process asset. These steps typically involve additional reviews, piloting, and/or prototyping. The verification procedure may be as simple as having one or more Reviewers look over the process asset and provide comments. The Asset Tester should identify the number and level of verification milestones. Note that these milestones should be aligned with the milestones in the Process Asset Database.
Task 8:	Review verification procedure. The Author and Asset Manager examine and concur with the verification procedure.

Task 9: **Perform verification procedure.** The Asset Tester is responsible for ensuring that the verification procedure, as defined during Task 7, is properly performed. The Asset Tester arranges the reviews, pilot projects, and/or testing of prototypes. The Asset Tester monitors the verification and ensures that identified defects are communicated to the Author. When these defects have been resolved to the mutual satisfaction of the Author and the Asset Tester, the Asset Tester certifies that the verification procedure has been completed. The results of the verification are maintained in a file of quality records for the project.

Task 10: **Send candidate process asset to CCB Process.** The Asset Manager forwards the verified candidate process asset to the ISD CCB Chair to initiate the CCB Process.

Tools • Process Assets Library at <http://software.gsfc.nasa.gov/process.cfm>

References See related ISD software process assets:

- [Software Process Asset Identification/Change Request Process](#)
- [ISD Configuration Control Board \(CCB\) Process](#)
- [ISD Glossary](#)

Development History

11/18/2003 – ETVX Diagram developed by the ISD Process Team

11/21/2003 – Draft process prepared (D. Schultz).

11/26/2003 – Draft updated to incorporate initial review comments. (D. Schultz)

12/03/2003 – Draft updated to follow the model of the CCB process and incorporate additional review comments from L. Landis. (D. Schultz)

01/07/2004 – Draft updated to reflect comments from Jan. 6 Process Team review

01/23/2004 – Draft updated to reflect comments from Jan. 21 Process Team review.

02/04/2004 – Contents of Task 4 updated to reflect comments from S. Godfrey. (D. Schultz)

02/25/2004 – Incorporated review comments from J. Hennessy, S. Naus, and S. Godfrey (L. Landis)

03/05/2004 – Incorporated review comments from J. Donahue and S. Green (D. Schultz)

03/15/2004 – Addressed CCB comment by adding a separate “Change History” section for modifications to the baselined document, and identifying the current section as “Development History.” Also added a glossary reference and hyperlink to PAL. (L. Landis)

Change History
